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Continuous living cover with winter annual oilseeds

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Pennycress and winter camelina near the ripening stage in early June at the USDA Swan Lake Research Farm. Photo by Cody Hoerning.

Midwest crop production is dominated by two summer annual crops grown in rotation, corn (*Zea mays* L.) and soybean [*Glycine max* (L.) Merr.]. This rotation leaves a productivity gap during the spring and autumn. Winter oilseed crops, such as pennycress (*Thlaspi arvense* L.) and winter camelina [*Camelina sativa* (L.) Crantz], can fill this gap and provide ecosystem and economic benefits.

In a recent study, soon to be published in *Agronomy Journal*, researchers evaluated relay-cropping production systems at three sites across Minnesota. Total seed production of the system (winter oilseed crop + soybean) was increased by 20% at one site, whereas at the other two sites, total yields were similar when compared with mono-cropped soybean. Soybean yield was reduced at two of the three sites by 20 and 47% by the inclusion of winter oilseeds. Soybean yield was unaffected by inclusion of winter oilseeds at the third site. Corn yield, in the subsequent year, was unaffected by the winter oilseed treatments. Weeds were suppressed by the winter oilseeds crops. Pennycress reduced weed biomass by 97 to 100%, and the camelina treatment reduced weed biomass by 85 to 87%.

In short, the inclusion of winter oilseeds in the corn–soybean cropping system can increase overall seed production and suppress early-season weeds.

Dig Deeper

Hoerning, C., Wells, M. S., Gesch, R., Forcella, F., & Wyse, D. (2020). Yield tradeoffs and weed suppression in a winter annual oilseed relay-cropping system. *Agronomy Journal*, *112*.

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